

Geochemical Characterization of Bou Dabbous Formation in Thrust Belt Zones, Northern Tunisia

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Abstract : The generative potential, depositional environment, thermal maturity and oil seeps of the organic-rich Bou Dabbous Formation (Ypresian) from the thrust belt northwestern Tunisia, were determined by Rock Eval and molecular analyses. The paleo-tectonic units in the area show some similarities with equivalent facies in Mediterranean Sea and Sicilian. The Bou Dabbous Formation displays variable source rock characteristics through the various units Tellian and Numidian nappes Units. Organic matter contents and petroleum potentials are fair to high (reaching 1.95% and 6 kg of HC/t of rock respectively) marine type II kerogen. An increasing SE-NW maturity gradient is well documented in the study area. The Bou Dabbous organic-rich facies are marginally mature stage in the Tellian Unit (Kasseb domain), whilst they are mature-late mature stage within Nefza-Ain Allega tectonic windows. A long and north of Cap Serrat-Ghardimaou Master Fault these facies are overmature. Oil/Oil and Oil/source rock correlation, based on biomarker and carbon isotopic composition, shows a positive genetic correlation between the oil seeps and Bou Dabbous source rock.

Keywords : biomarkers, Bou Dabbous Formation, Northern Tunisia, source rock

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